TIGGER Transit Investments for Greenhouse Gas and Energy Reduction

U.S. Department of Transportation
Federal Transit Administration

Courtesy of TriMet

Project name: TriMet Bus Efficiency Improvement Project

Transit agency: Tri-County Metropolitan Transportation District of Oregon

Location: Portland, Oregon

TIGGER goal: Energy and GHG emissions reduction

FTA region number: X

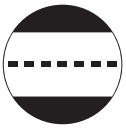
Award amount: $750,000

Congressional district: OR-1; OR-3; OR-5

Funding mechanism: Recovery Act (ARRA)

Electronic Bus Cooling System Saves Fuel at TriMet

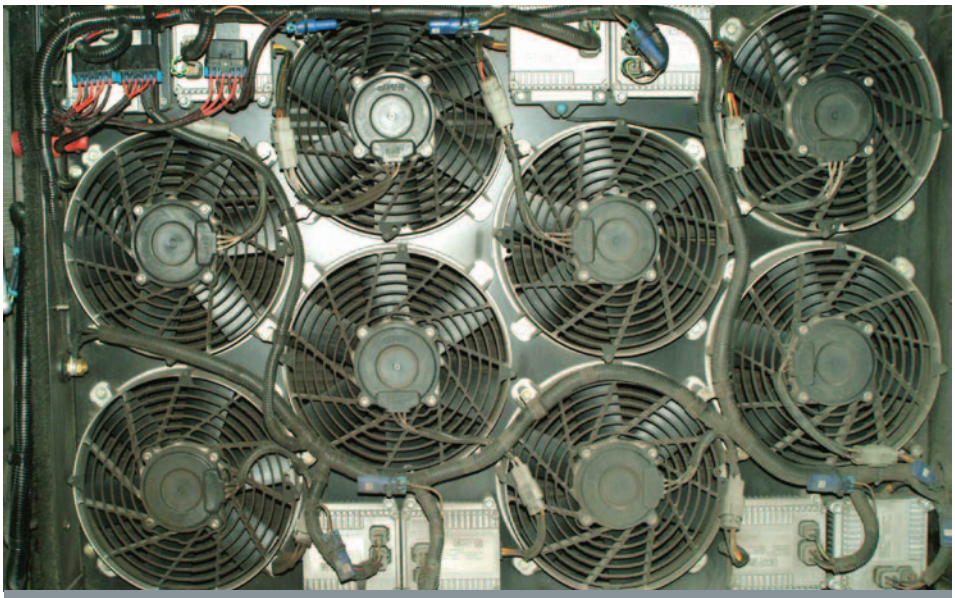
With a $750,000 grant from the TIGGER Program, the Tri-County Metropolitan Transportation District of Oregon (TriMet) is replacing the existing bus cooling system in 39 buses in its fleet with a more efficient electrically-powered system to enhance bus performance, reduce emissions, and increase the average fuel efficiency.


Vehicle Project

TriMet retrofitted each of the 39 hydraulically-driven bus cooling systems with a miniHYBRID thermal kit, a fully contained cooling system manufactured by Engineered Machined Products (EMP). A high output alternator and a system of heat exchangers and eight electronically controlled electric fans replace the original bus alternator and cooling system. The miniHYBRID kit includes temperature sensors for the engine charge air and engine jacket water flow paths to separately optimize cooling of those systems.

Previously, TriMet helped EMP bring this miniHYBRID electronic cooling system to market by

The Tri-County Metropolitan Transportation District of Oregon (TriMet) provides public transportation for much of Multnomah, Clackamas, and Washington Counties in the Portland, Oregon metro area. About 1.5 million people live in the 570 square mile service area. TriMet operates a comprehensive public transit network including a 51-mile, 85-station MAX light rail system, 79 bus lines, and door-to-door service for seniors and people with disabilities. Riders make an average of 235,000 weekday trips on TriMet's fixed routes. TriMet operates and maintains 625 transit buses, 119 light rail vehicles, and 4 commuter rail cars. A contractor for TriMet operates an additional 252 LIFT vehicles and 15 minivans for door-to-door service.



Courtesy of TriMet

A close-up of the EMP thermal management system after installation in a TriMet bus.

funding its development, testing, and evaluation in transit applications, and in May 2009, TriMet and EMP were honored with the EPA Clean Air Excellence Award.

The miniHYBRID system has reduced fuel use by an average of 5% in each bus that it was installed. Each TriMet bus travels approximately 50,000 miles annually and uses an average of 11,869 gallons of diesel fuel; with the miniHYBRID system, each retrofitted bus reduced its annual diesel fuel consumption by an average of 593 gallons. The reduction was most evident during mild and cold weather – during the warm summer months, increased engine cooling requirements led to a smaller reduction in fuel use.

Impact:

The miniHYBRID system reduces diesel fuel use for each bus by an average of 5%, providing direct energy savings and emissions reductions at TriMet.

This bus efficiency improvement project has reduced TriMet's annual diesel fuel consumption, and the fuel savings directly translate into energy savings and emissions reductions for TriMet. The improved vehicle mileage achieved by each bus also reduces exhaust emissions by more than 5%.

Based on this successful project demonstration, TriMet is including the EMP miniHYBRID system on its future bus orders. This project also shows other transit agencies how the EMP miniHybrid thermal system can be used to retrofit existing transit fleets to achieve fuel savings and reduce greenhouse gas emissions in a cost-effective manner.

About TIGGER

The Transit Investment for Greenhouse Gas and Energy Reduction (TIGGER) Program *was established in 2009 by the U.S. Department of Transportation's Federal Transit Administration (FTA). Designed to reduce energy use and greenhouse gas emissions in transit agencies around the country, the TIGGER Program made funds available for capital investments that would reduce greenhouse gas emissions or lower the energy use of public transportation systems. An initial $100 million in American Recovery and Reinvestment Act grants funded 43 competitively-selected transit projects. In 2010, the FTA provided an additional $75 million in grants to fund 27 new TIGGER projects. These 70 projects are employing a variety of technologies to meet the program goals, including solar installations, building efficiency improvements, wind technology, wayside energy storage for rail, and purchase of more efficient buses. In fiscal year 2011, FTA provided an additional $49.9 million to continue the program.*

For More Information

TriMet: ***www.trimet.org***

FTA TIGGER: ***www.fta.dot.gov/TIGGER***

TIGGER

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U.S. Department of Transportation
Federal Transit Administration
1-866-377-8642

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